CHAPTER 5

# RIGGING SEVEN-BAY, SINGLE-STORY, MEDIUM GIRDER (FIXED) BRIDGE ON A TYPE V PLATFORM

Section I

## LOW-VELOCITY AIRDROP

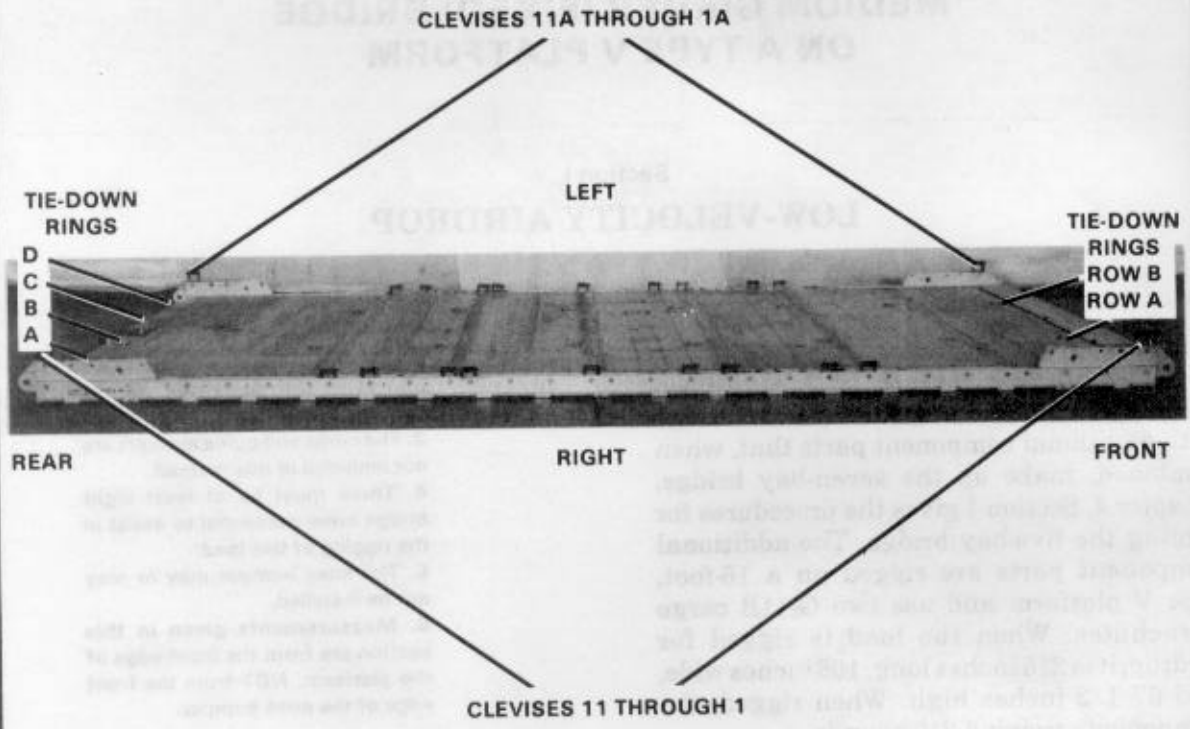
### 5-1. Description of Load

The seven-bay, single-story, medium girder (fixed) bridge consists of a five-bay, single-story, medium girder (fixed) bridge with additional component parts that, when combined, make up the seven-bay bridge. Chapter 4, Section I gives the procedures for rigging the five-bay bridge. The additional component parts are rigged on a 16-foot, type V platform and use two G-11B cargo parachutes. When the load is rigged for airdrop, it is 215 inches long, 108 inches wide, and 67 1/2 inches high. When rigged, the components weigh 6,310 pounds.

NOTES: 1. The additional components platform must be dropped with the five-bay, single-story, medium girder (fixed) bridge. See Chapter 4 for the rigging procedures for the five-bay bridge.
2. All small components will be placed in the parts box on the five-bay bridge.
3. The curbs and guide markers are not included in this manual.
4. There must be at least eight bridge crew personnel to assist in the rigging of this load.
5. The nose bumper may or may not be installed.
6. Measurements given in this section are from the front edge of the platform, NOT from the front edge of the nose bumper.

### 5-2. Preparing Platform

Prepare a 16-foot, type V airdrop platform using four tandem links and 22 clevis assemblies as shown in Figure 5-1.



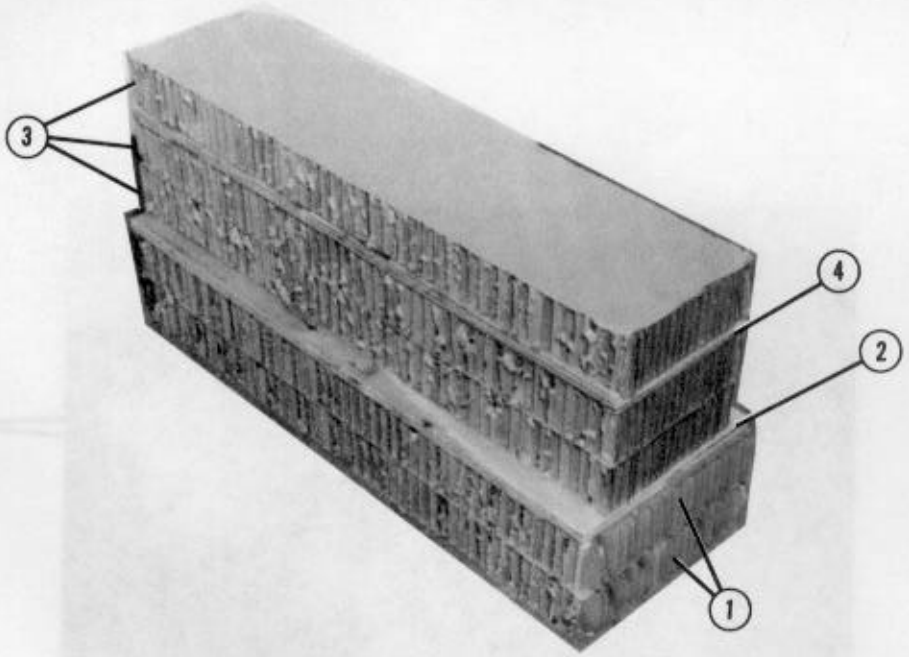

**Step:**

1. **Inspect, or assemble and inspect, the platform according to TM 10-1670-268-20&P/TO 13C7-52-22.**
2. **Install a tandem link on the front of each platform side rail using holes 1, 2, and 3.**
3. **Install a tandem link on the rear of each platform side rail using holes 30, 31, and 32.**
4. **Install a clevis on bushing 1 on each front tandem link.**
5. **Install a clevis on bushing 4 on each rear tandem link.**
6. **Starting at the front of each platform side rail, install clevises on each platform side rail using the bushings bolted on holes 9, 10, 13, 14, 17, 20, 21, 23, and 24.**
7. **Starting at the front of the platform, number the clevises bolted to the right side from 1 through 11 and those bolted to the left side from 1A through 11A.**
8. **Starting at the front of the platform, label the two tie-down rings in the first seven panels A and B from right to left. Label the four tie-down rings in the last panel A, B, C, and D from right to left. Starting with the first panel, number the tie-down rings 1 through 8.**

*Figure 5-1. Platform prepared*

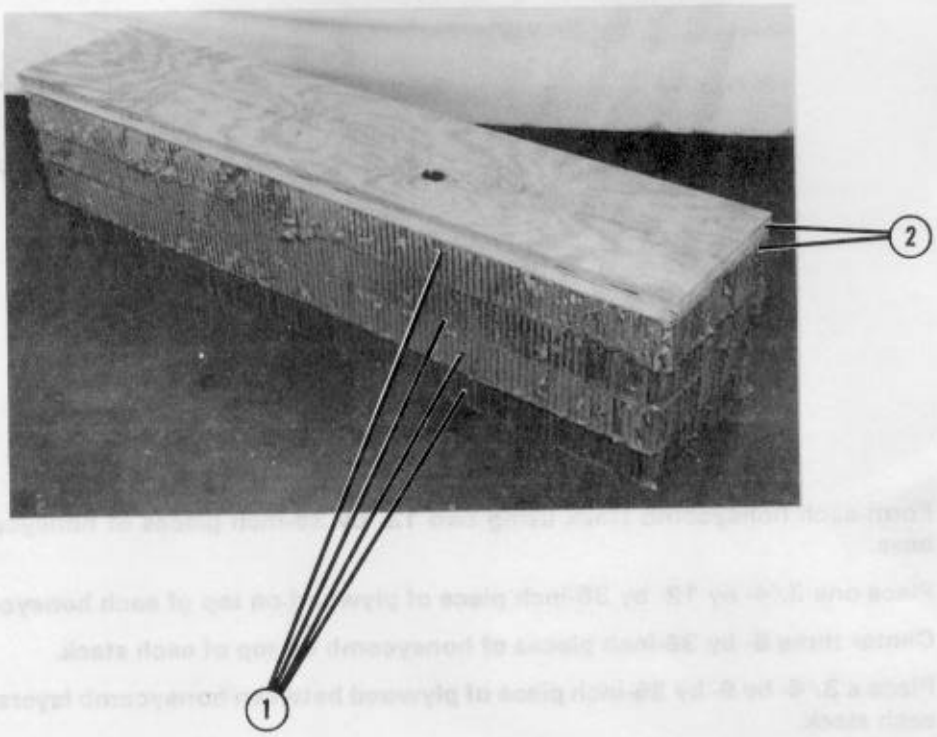
## 5-3. Preparing and Positioning Honeycomb Stacks

Prepare the honeycomb stacks as shown in Figures 5-2 and 5-3. Position the honeycomb stacks on the platform as shown in Figure 5-4.




1. Form each honeycomb stack using two 12- by 36-inch pieces of honeycomb as the base.
2. Place one 3/4- by 12- by 36-inch piece of plywood on top of each honeycomb base.
3. Center three 9- by 36-inch pieces of honeycomb on top of each stack.
4. Place a 3/4- by 9- by 36-inch piece of plywood between honeycomb layers 4 and 5 of each stack.

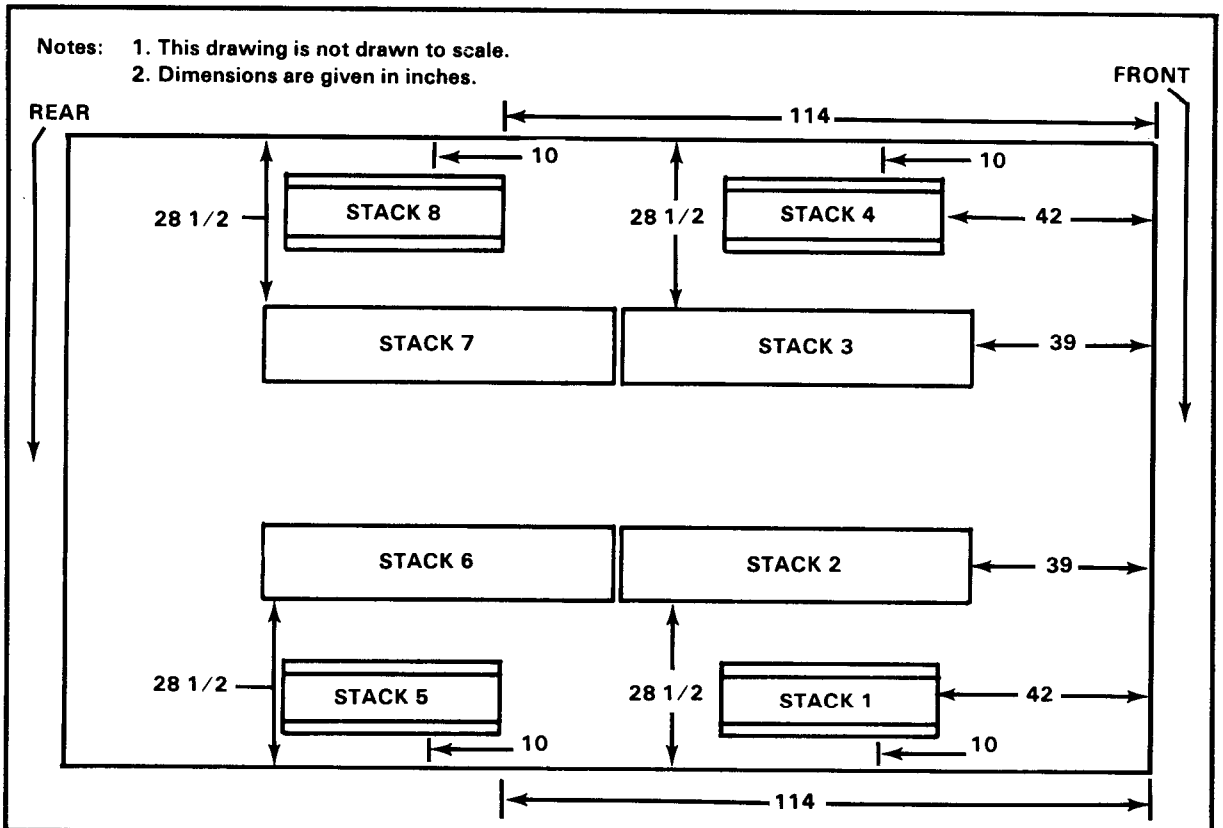
*Figure 5-2. Honeycomb stacks 1, 4, 5, and 8 prepared*




(1) Form each honeycomb stack using four 12- by 57-inch pieces of honeycomb.

(2) Place two 3/4- by 12- by 57-inch pieces of plywood on top of each stack.

*Figure 5-3. Honeycomb stacks 2, 3, 6, and 7 prepared*



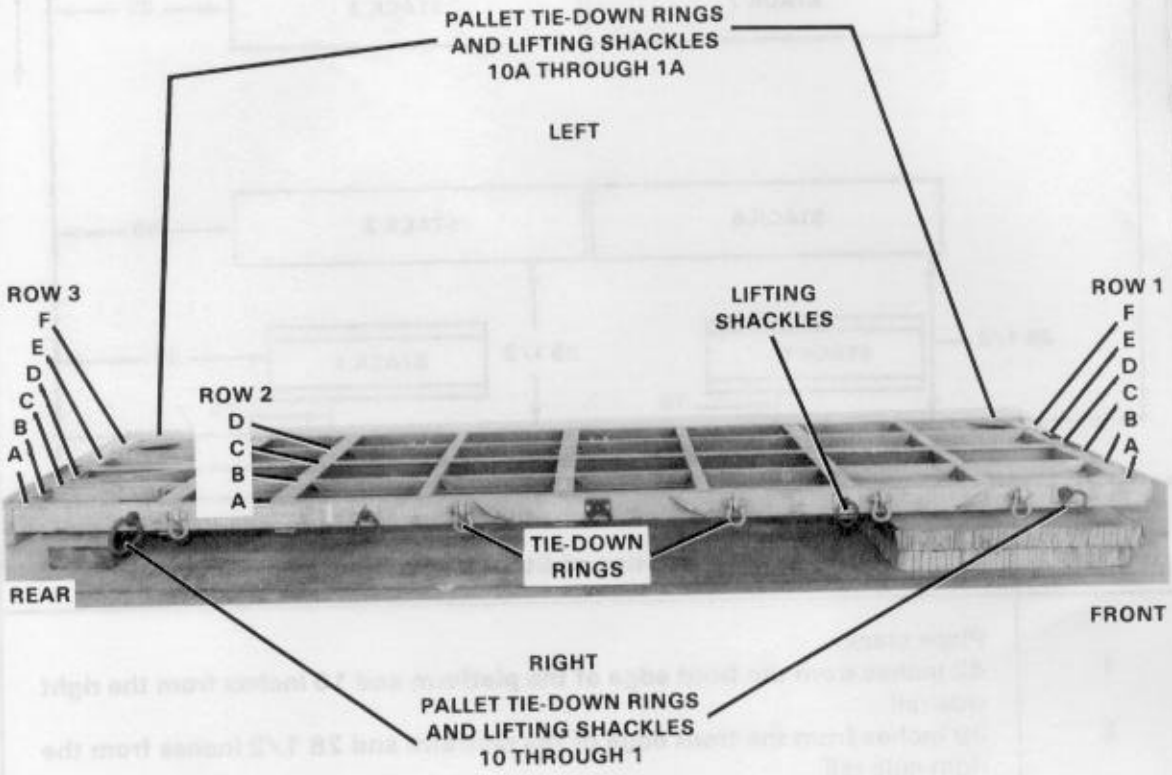

| Stack Number | Position of Stack on Platform |
|---|---|
| | Place stack: |
| 1 | 42 inches from the front edge of the platform and 10 inches from the right side rail. |
| 2 | 39 inches from the front edge of the platform and 28 1/2 inches from the right side rail. |
| 3 | 39 inches from the front edge of the platform and 28 1/2 inches from the left side rail. |
| 4 | 42 inches from the front edge of the platform and 10 inches from the left side rail. |
| 5 | 114 inches from the front edge of the platform and 10 inches from the right side rail. |
| 6 | Flush against the rear edge of stack 2 and 28 1/2 inches from the right side rail. |
| 7 | Flush against the rear edge of stack 3 and 28 1/2 inches from the left side rail. |
| 8 | 114 inches from the front edge of the platform and 10 inches from the left side rail. |

*Figure 5-4. Honeycomb stacks positioned on the platform*

## 5-4. Preparing Pallet

Prepare the pallet as shown in Figures 5-5 through 5-12.

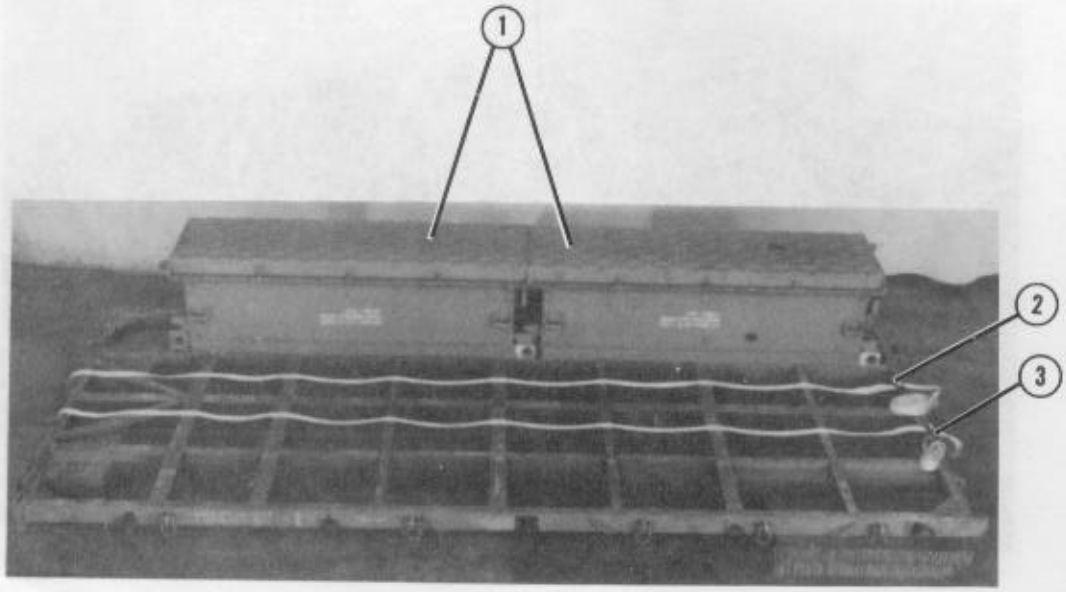
Note: All pallet tie-down rings and lifting shackles must be present.




**Step:**

1. **Starting at the front of the pallet, number the tie-down rings and lifting shackles bolted to the right side from 1 through 10 and those bolted to the left side from 1A through 10A.**
2. **Starting at the front of the pallet, label row 1 of tie-down rings and lifting shackles from right to left A1 through F1. Label row 2 from right to left A2 through D2. Label row 3 from right to left A3 through F3.**
3. **Place two 96- by 36-inch pieces of honeycomb under the front of the pallet to keep the pallet level.**

*Figure 5-5. Pallet labeled*

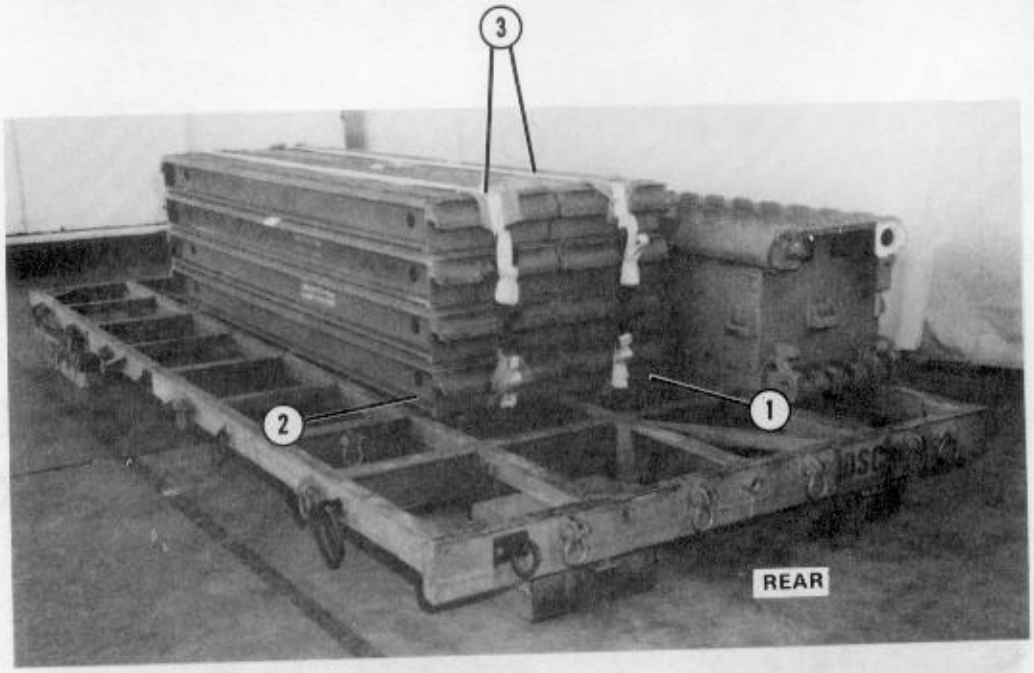



(1) Position two top panels on the pallet 4 1/2 inches from the front edge of the pallet and 2 1/2 inches overhanging the left side of the pallet. Make sure the shoot bolt is in the locked position.

(2) Form two 30-foot lashings according to FM 10-500-2/TO 13C7-1-5. Place one 30-foot lashing on top of the pallet 8 3/4 inches from the right edge of the top panels in a front-to-rear direction.

(3) Place one 30-foot lashing on top of the pallet 26 1/4 inches from the right edge of the top panels in a front-to-rear direction.

*Figure 5-6. Two top panels positioned on left side of pallet*




(1) Center four decks on the pallet against the top panels.

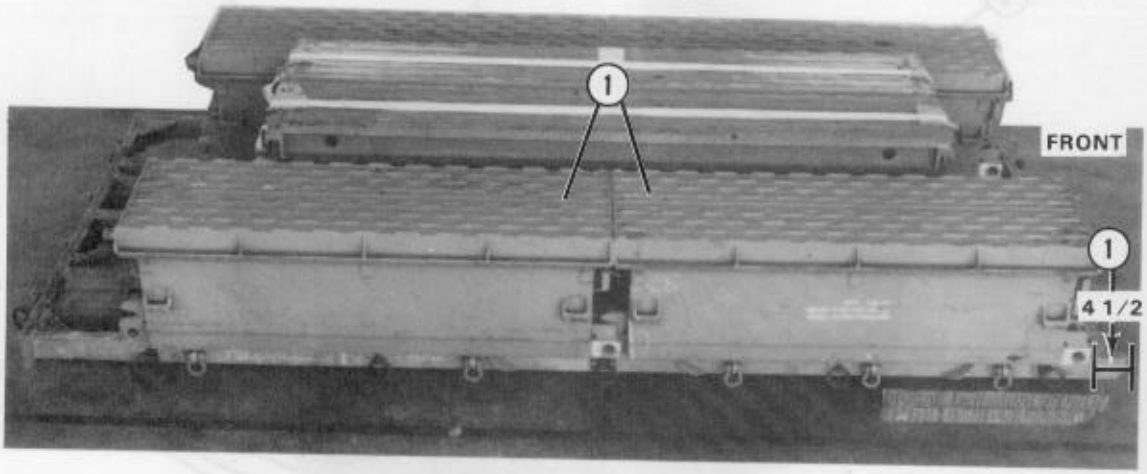
(2) Center four decks on the pallet against the first four decks.

(3) Secure each stack of decks using the pre-positioned lashings. Secure the lashings according to FM 10-500-2/TO 13C7-1-5 on the rear of the decks.

Note: Pad the lashings where they touch the ends of the decks.

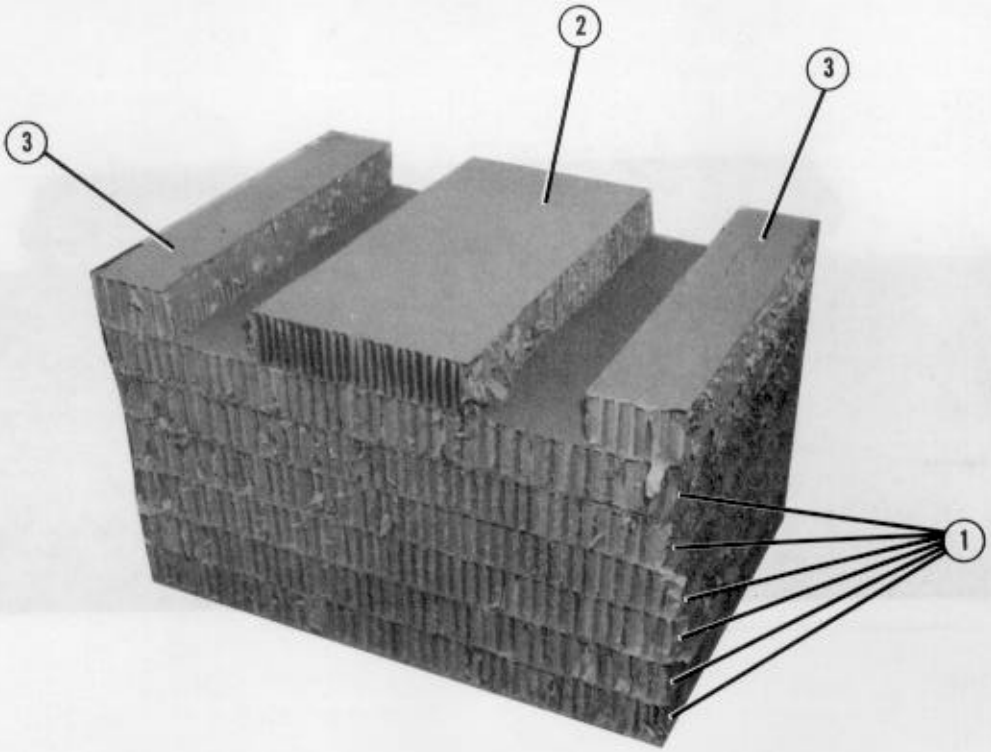
*Figure 5-7. Eight decks positioned and secured*

Note: Dimensions are given in inches.




(1) **Position two top panels on the pallet 4 1/2 inches from the front edge of the pallet and 2 1/2 inches overhanging the right side of the pallet. Make sure the shoot bolt is in the locked position.**

*Figure 5-8. Two top panels positioned on right side of pallet*




(1) Form the base of the honeycomb support using six 35-by 26-inch pieces of honeycomb.

(2) Center a 13- by 26-inch piece of honeycomb on the base.

(3) Place a 5- by 26-inch piece of honeycomb on each side flush with the edges of the base.

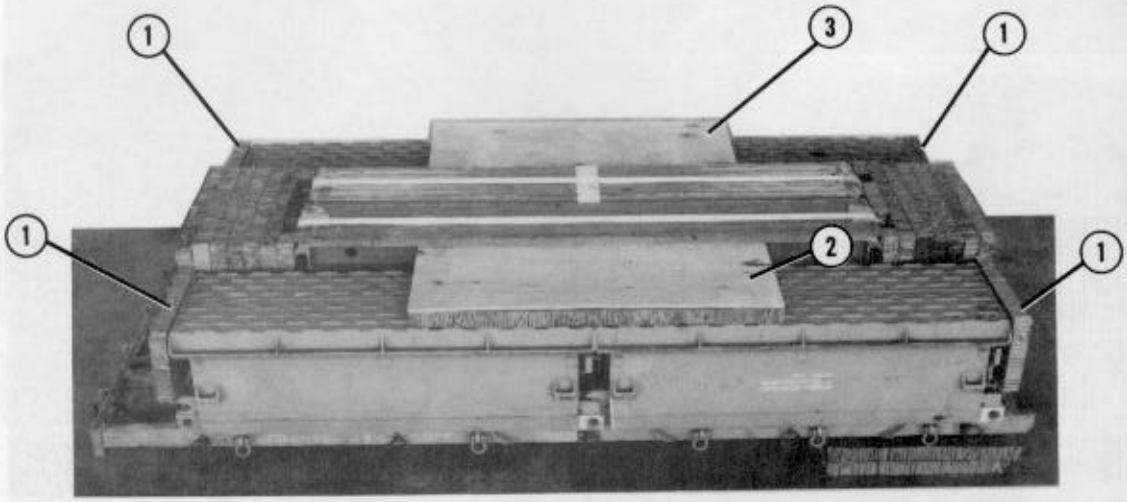
(4) Repeat steps 1 through 3 to build another honeycomb support.

*Figure 5-9. Honeycomb supports built*


(1) **Place a honeycomb support on edge. Position the honeycomb support so that the small pieces of honeycomb are against the front end of the secured decks.**

(2) **Place the other honeycomb support on edge. Position the honeycomb support so that the small pieces of honeycomb are against the rear end of the secured decks (not shown).**

*Figure 5-10. Honeycomb supports positioned*

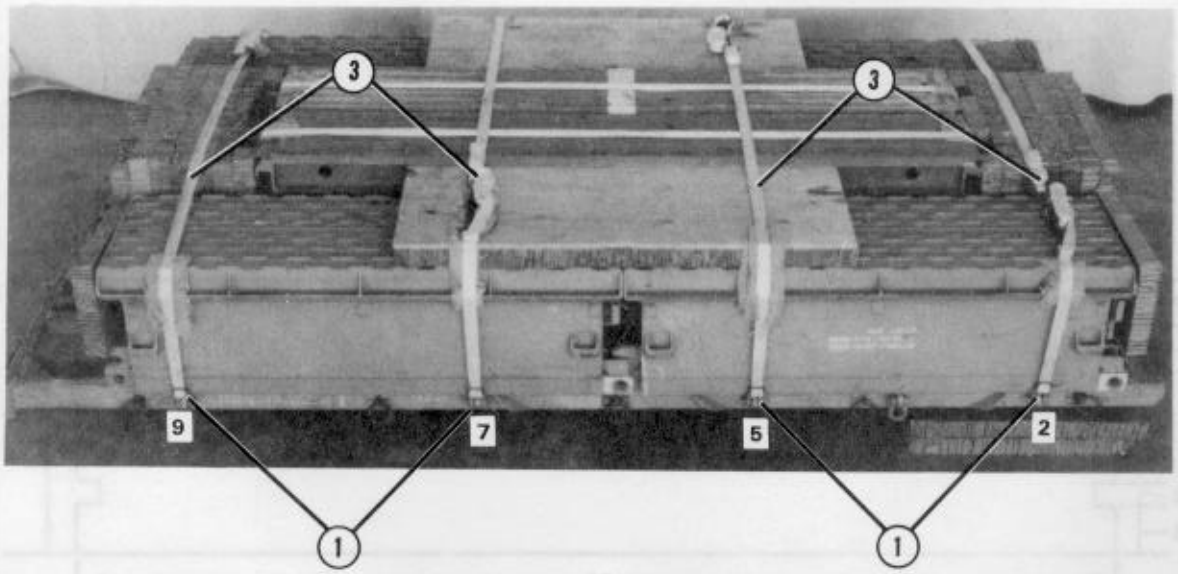



(1) Place a 24- by 14-inch piece of honeycomb on each end of the positioned top panels. Make sure the honeycomb pieces are flush with the top edge of the panels.

(2) Center a 25- by 64-inch piece of honeycomb on top of the right two top panels. Place a 3/4- by 25- by 64-inch piece of plywood on top of the honeycomb.

(3) Center a 25- by 64-inch piece of honeycomb on top of the left two top panels. Place a 3/4- by 25- by 64-inch piece of plywood on top of the honeycomb.

*Figure 5-11. Honeycomb and plywood placed on top panels*




(1) Pass a 15-foot lashing through pallet tie-down rings 2, 5, 7, and 9 and back through their own D-rings.

(2) Repeat step 1 for the left side of the pallet (not shown) using pallet tie-down rings 2A, 5A, 7A, and 9A.

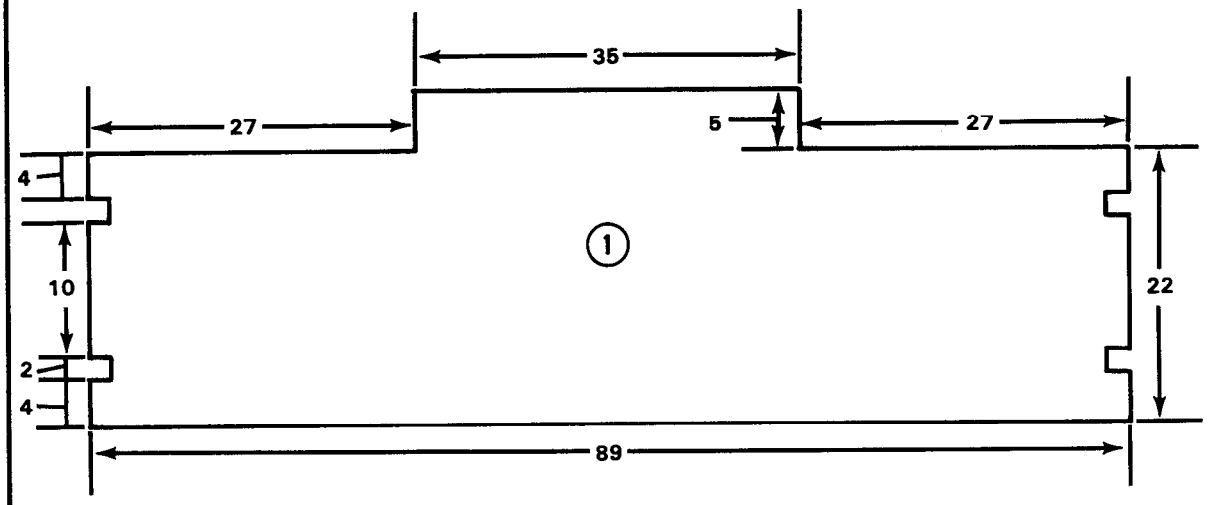
(3) Run the lashings over the top of the load. Secure the lashings according to FM 10-500-2/TO 13C7-1-5. Pad the lashings where they come in contact with the top panels and honeycomb.

*Figure 5-12. Pallet lashings installed and secured*

## 5-5. Building and Positioning Restraint Boards

Build the restraint boards as shown in Figures 5-13 and 5-14. Position the restraint boards as shown in Figure 5-15.

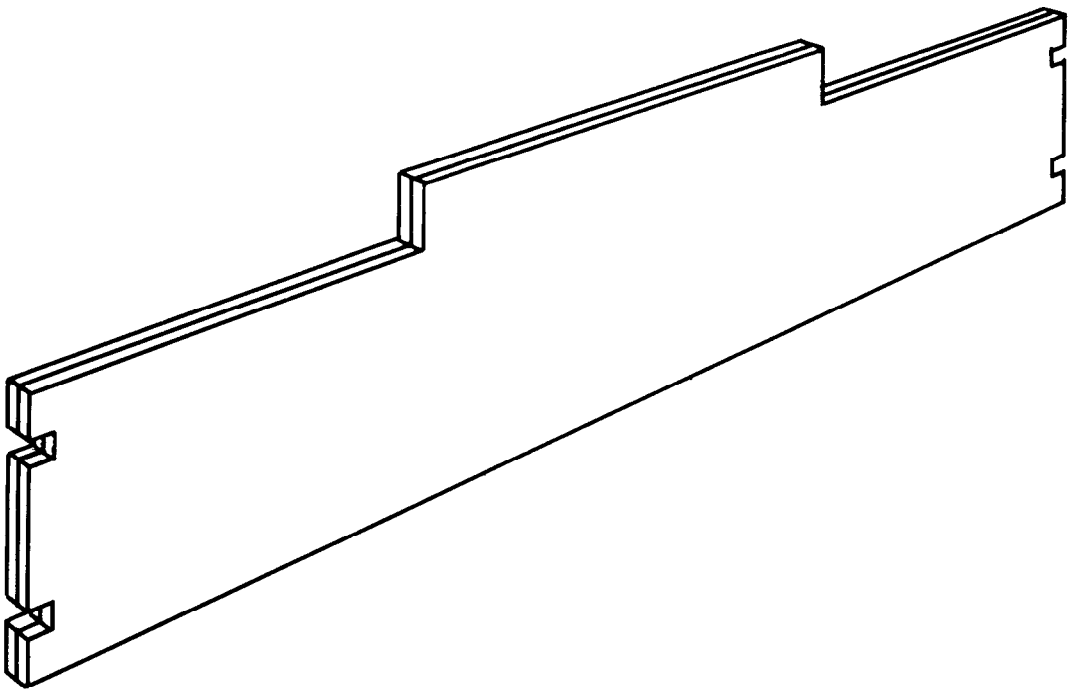
Notes: 1. This drawing is not drawn to scale.
2. Dimensions are given in inches.




| Item Number | Pieces | Width (Inches) | Length (Inches) | Material |
|---|---|---|---|---|
| 1 | 4 | 89 | 27 | 3/4-inch plywood |

*Figure 5-13. Materials required to build restraint boards*

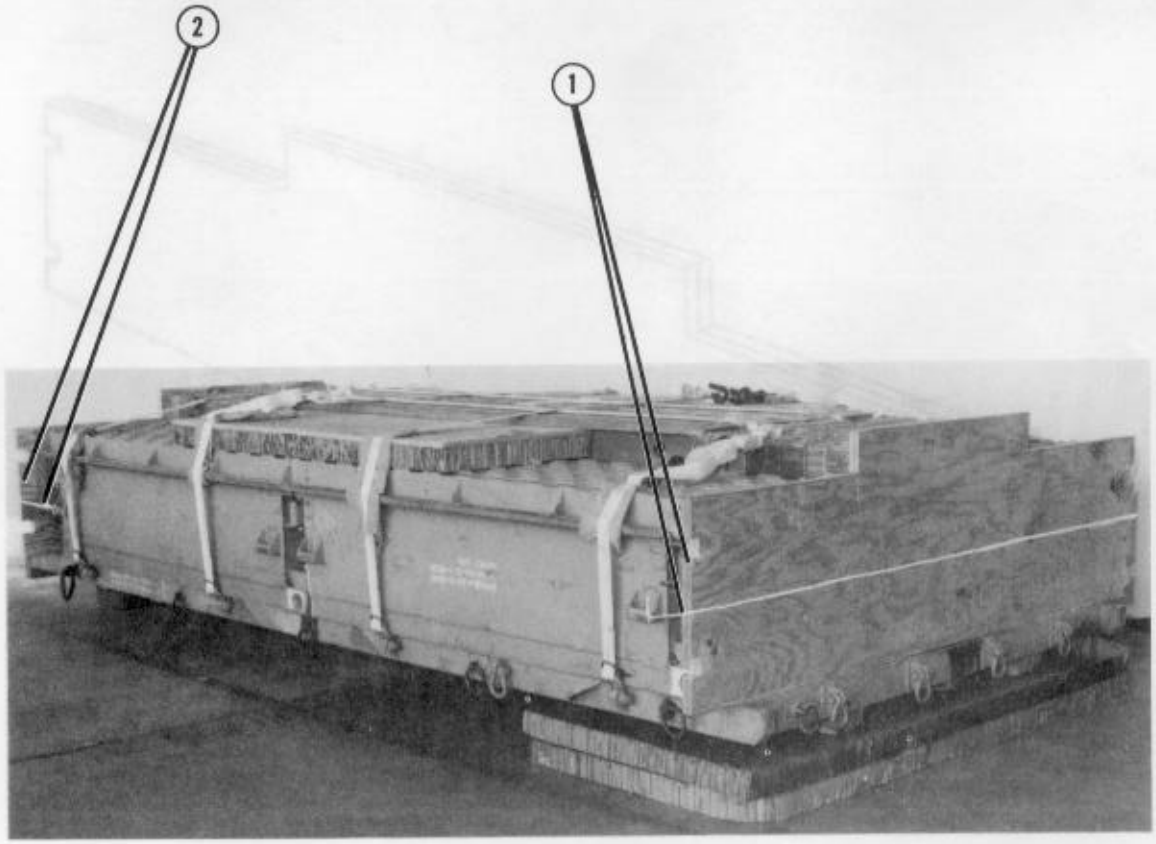
Note: This drawing is not drawn to scale.



**Step:**

1. Build each restraint board using two pieces of plywood as given in Figure 5-13.
2. Use eightpenny nails to secure each restraint board.

*Figure 5-14. Restraint boards built*




(1) **Position one restraint board against the front of the load. Secure the board in place using a length of type III nylon cord.**

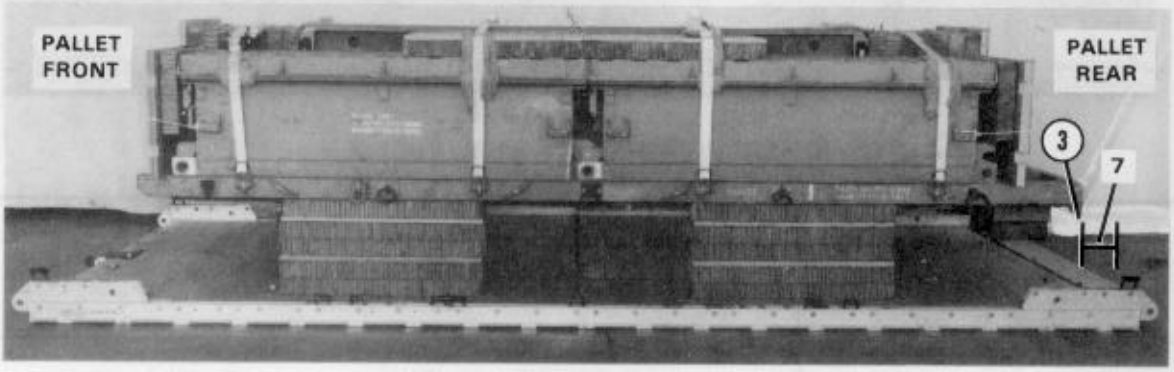
(2) **Position one restraint board against the rear of the load. Secure the board in place using a length of type III nylon cord.**

*Figure 5-15. Restraint boards positioned*

## 5-6. Positioning Pallet on Platform

Position the pallet on the platform using four 12-foot (2-loop), type XXVI nylon webbing slings and four medium suspension clevises as shown in Figure 5-16.

Notes: 1. Dimensions are given in inches.
2. Tape the unused pallet tie-down rings and lifting shackles in the UP position while positioning the pallet (not shown).




(1) **Pass the end of a 12-foot sling through a medium suspension clevis (not shown). Repeat this step for the other three lifting slings.**

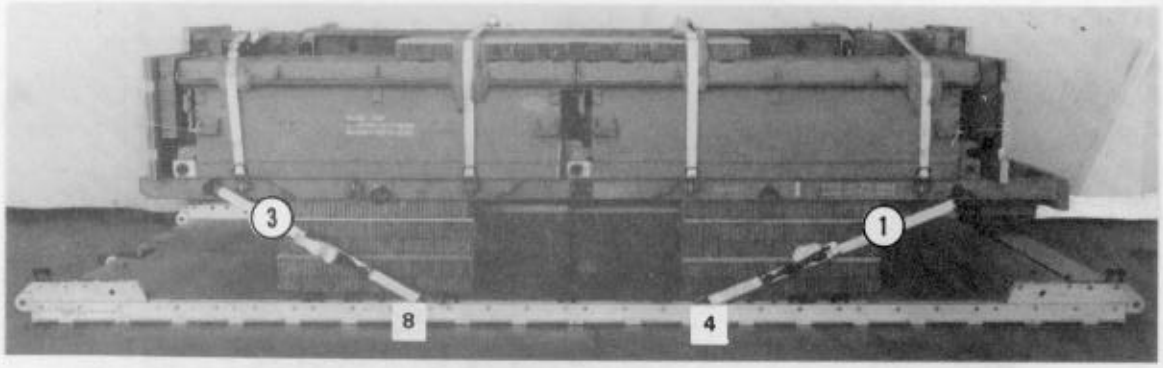
(2) **Attach the medium suspension clevises to lifting shackles 1, 1A, 10, and 10A (not shown).**

(3) **Position the pallet on the platform so that the rear of the pallet is 7 inches from the front edge of the platform.**

*Figure 5-16. Pallet positioned on platform*

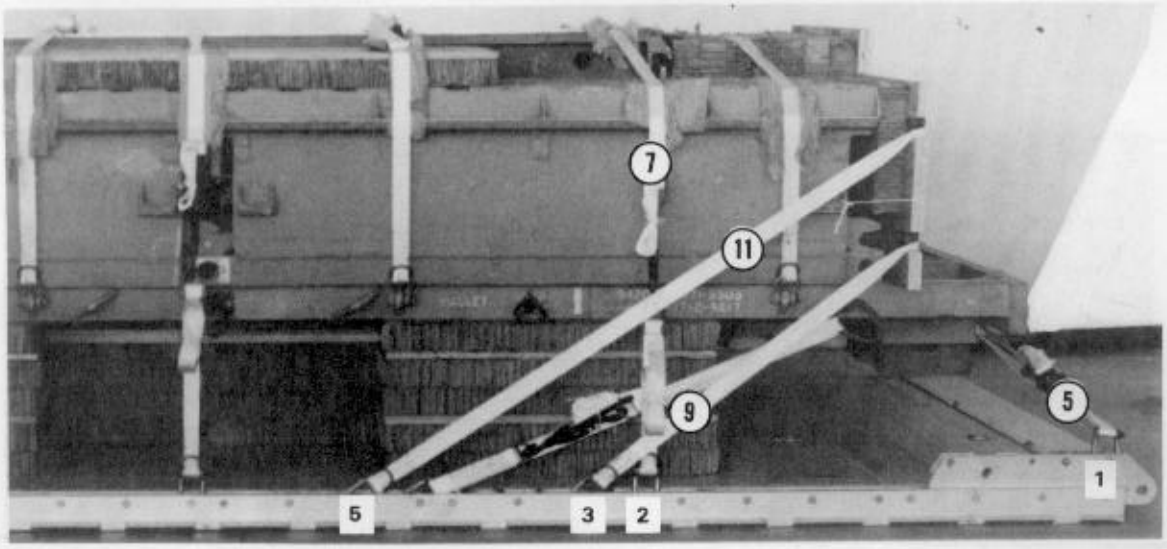
### 5-7. Lashing Pallet

Lash the pallet to the platform with twenty-two 15-foot tie-down assemblies as shown in Figures 5-17, 5-18, and 5-19. Secure the lashings according to FM 10-500-2/ TO 13C7-1-5.



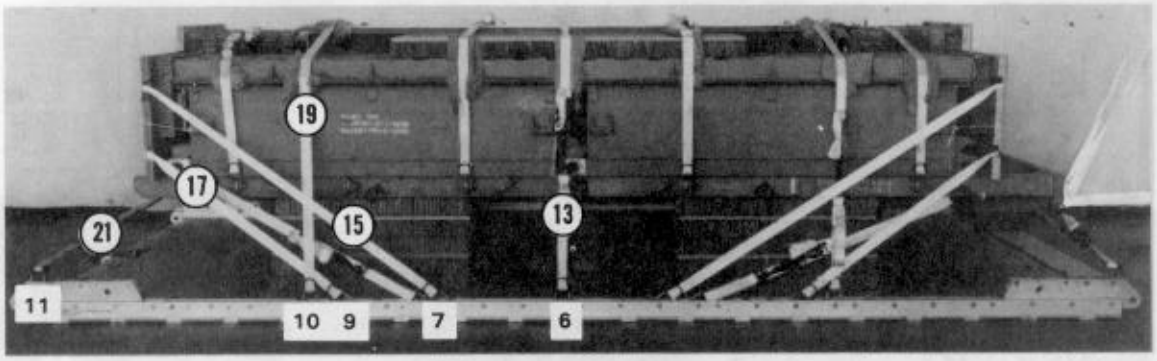

| Lashing Number | Tie-down Clevis Number | Instructions |
|---|---|---|
| | | **Pass lashing:** |
| 1 | 4 | To lifting shackle 10A. |
| 2 | 4A | To lifting shackle 10. |
| 3 | 8 | To lifting shackle 1A. |
| 4 | 8A | To lifting shackle 1. |

*Figure 5-17. Lashings 1 through 4 installed*




| Lashing Number | Tie-down Clevis Number | Instructions |
|---|---|---|
| | | Pass lashing: |
| 5 | 1 | To lifting shackle A3. |
| 6 | 1A | To lifting shackle F3. |
| 7 | 2 | Through own D-ring and over top of load. |
| 8 | 2A | Through own D-ring and over top of load. Secure it to lashing 7. |
| 9 | 3 | Through own D-ring and through bottom cutout of restraint board. |
| 10 | 3A | Through own D-ring and through bottom cutout of restraint board. Secure it to lashing 9. |
| 11 | 5 | Through own D-ring and through top cutout of restraint board. |
| 12 | 5A | Through own D-ring and through top cutout of restraint board. Secure it to lashing 11. |

*Figure 5-18. Lashings 5 through 12 installed*

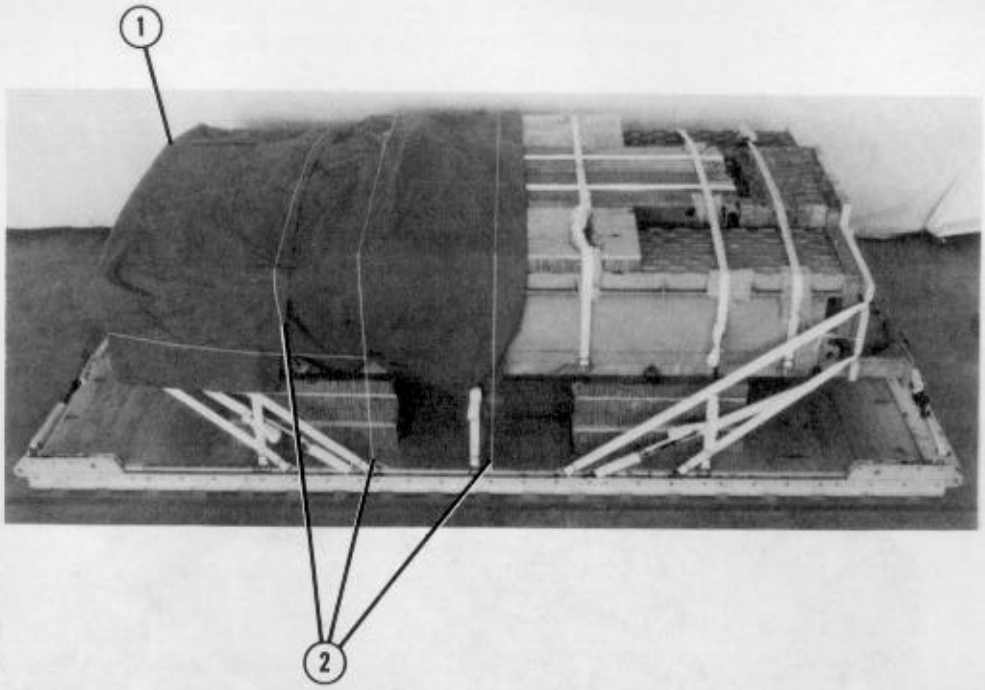



| Lashing Number | Tie-down Clevis Number | Instructions |
|---|---|---|
| | | Pass lashing: |
| 13 | 6 | Through own D-ring and over top of load. |
| 14 | 6A | Through own D-ring and over top of load. Secure it to lashing 13. |
| 15 | 7 | Through own D-ring and through top cutout of restraint board. |
| 16 | 7A | Through own D-ring and through top cutout of restraint board. Secure it to lashing 15. |
| 17 | 9 | Through own D-ring and through bottom cutout of restraint board. |
| 18 | 9A | Through own D-ring and through bottom cutout of restraint board. Secure it to lashing 17. |
| 19 | 10 | Through own D-ring and over top of load. |
| 20 | 10A | Through own D-ring and over top of load. Secure it to lashing 19. |
| 21 | 11 | To lifting shackle A1. |
| 22 | 11A | To lifting shackle F1. |

*Figure 5-19. Lashings 13 through 22 installed*

## 5-8. Preparing and Positioning Load Cover

Prepare and position the load cover as shown in Figure 5-20.




(1) **Prepare a 8- by 12-foot cotton duck load cover. Place the load cover on the front end of the pallet toward the rear of the platform.**

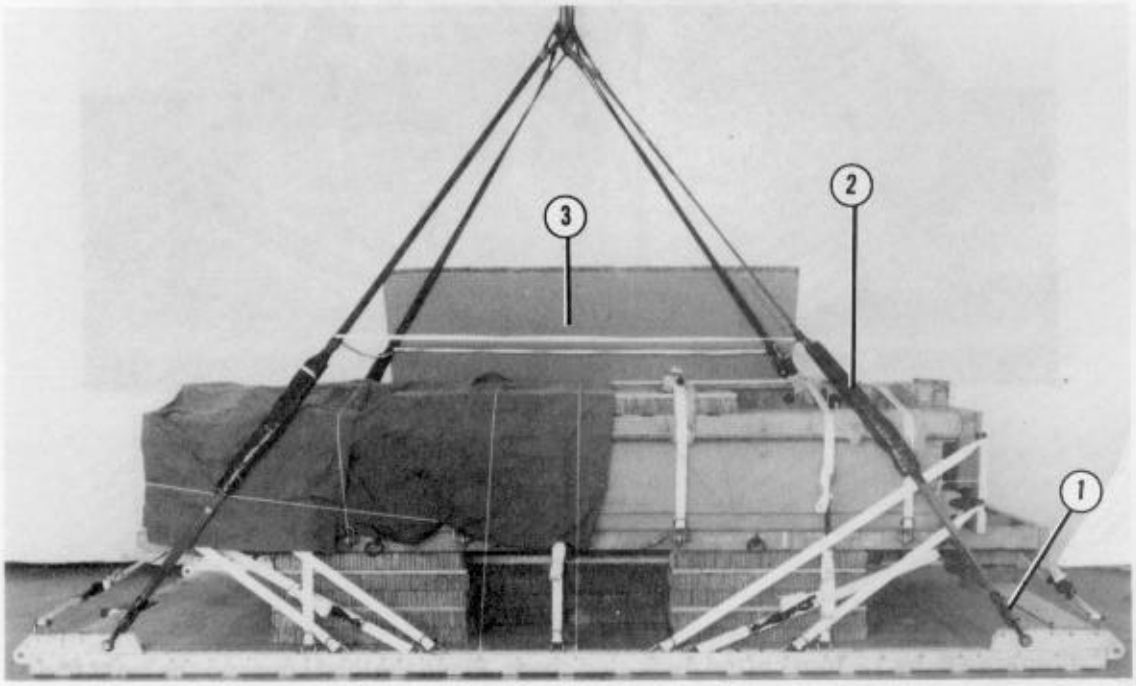
(2) **Secure the load cover in place to convenient points on the load and platform with lengths of type III nylon cord.**

*Figure 5-20. Load covered*

### 5-9. Installing Suspension Slings

Install the suspension slings as shown in Figure 5-21.

**Note: Raise the suspension slings until they are tight.**

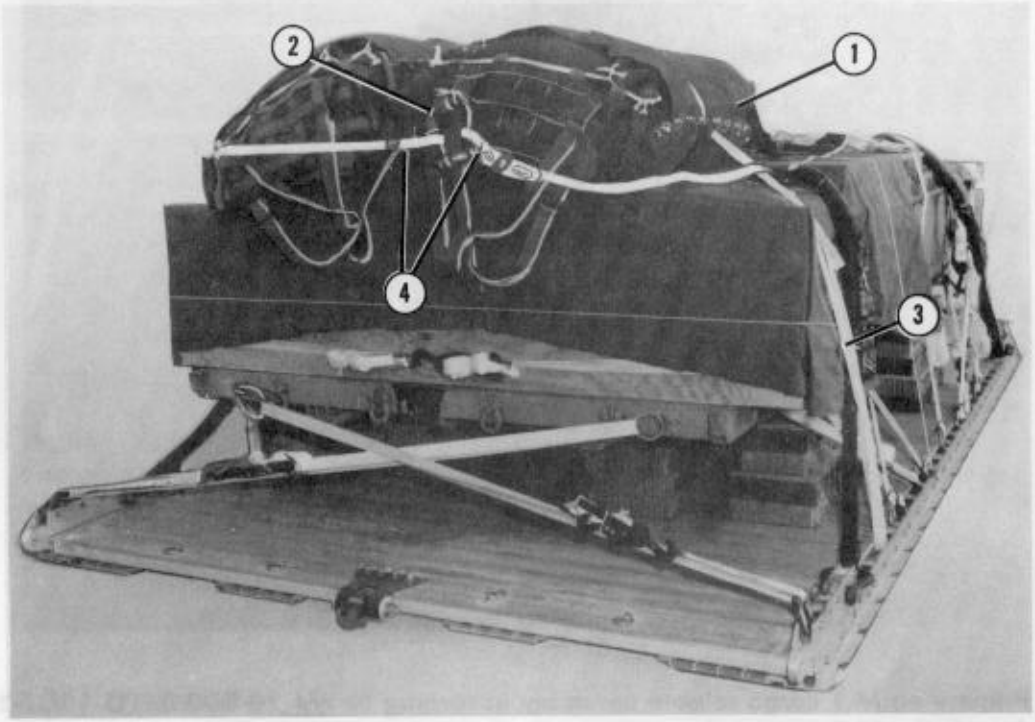



1. **Fit a 12-foot (2-loop), type XXVI nylon webbing sling to the bell portion of a large suspension clevis. Bolt the large suspension clevis to the right front tandem link. Adapt this step for the other three suspension slings.**
2. **Pad the suspension slings by wrapping an 8- by 36-inch piece of felt 30 inches from the top of the large suspension clevis of each sling. Secure the padding with three lengths of type III nylon cord and pressure-sensitive tape.**
3. **Safety the suspension slings by installing a deadman's tie according to FM 10-500-2/TO 13C7-1-5.**
4. **Lower the suspension slings on the load (not shown).**

*Figure 5-21. Suspension slings installed and safetied*

## 5-10. Stowing Cargo Parachutes

Stow two G-11B cargo parachutes on the front of the pallet according to FM 10-500-2/ TO 13C7-1-5 and as shown in Figure 5-22.

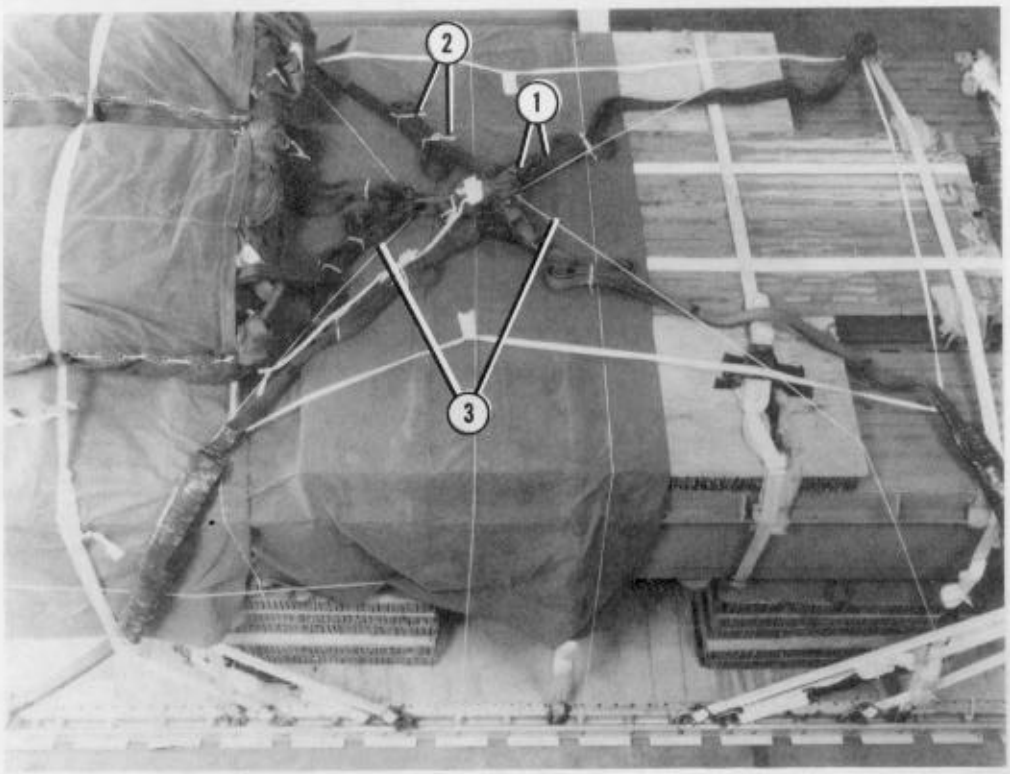



1. **Set two G-11B cargo parachutes side by side on the front of the pallet to the rear of the platform.**
2. **Group the two bridle assemblies on the right side with a large suspension clevis.**
3. **Restrain the cargo parachutes to convenient points on the platform with lengths of type VIII nylon webbing according to FM 10-500-2/TO 13C7-1-5.**
4. **Install two multicut parachute release straps according to FM 10-500-2/TO 13C7-1-5.**

*Figure 5-22. Cargo parachutes stowed*

### 5-11. Installing Release System

Prepare and install the M-1 release system according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-23.




(1) **Prepare an M-1 cargo release assembly according to FM 10-500-2/TO 13C7-1-5. Attach the M-1 cargo release assembly to the suspension slings and G-11B cargo parachutes according to FM 10-500-2/TO 13C7-1-5.**

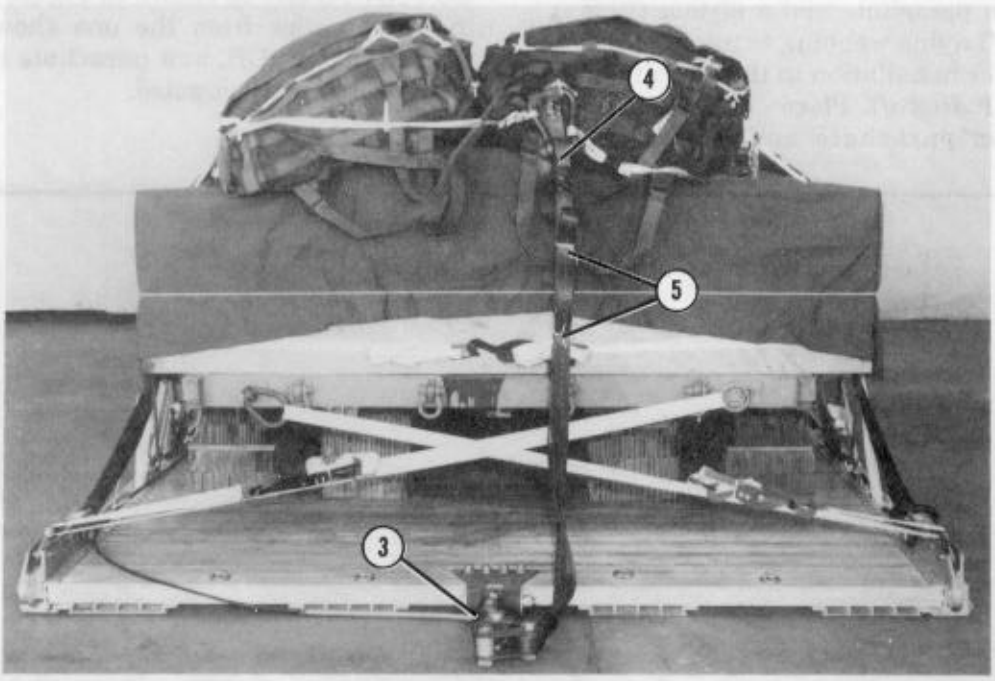
(2) **Fold the suspension slings. Secure the folds with lengths of type I, 1/4-inch cotton webbing.**

(3) **Secure the top and bottom of the M-1 cargo parachute release according to FM 10-500-2/TO 13C7-1-5.**

*Figure 5-23. Release system installed*

## 5-12. Installing Extraction System

Install the EFTC extraction system according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-24.




(1) Bolt the type V EFTA mounting brackets to the front mounting holes on the left platform side rail (not shown).

(2) Install the actuator to the EFTA mounting brackets with a 16-foot cable according to FM 10-500-2/TO 13C7-1-5 (not shown).

(3) Attach the latch assembly to the extraction bracket with the locking nut hole facing toward the left side of the platform according to FM 10-500-2/TO 13C7-1-5.

(4) Connect one end of a 9-foot (2-loop), type XXVI nylon webbing sling as a deployment line to the right spacer of the link assembly. Connect the free end of the deployment line to the large clevis clustering the bridle assemblies.

(5) Fold the excess deployment line. Secure the folds with type I, 1/4-inch cotton webbing.

(6) Safety the 16-foot cable to the lashings along the left platform side rail using lengths of type I, 1/4-inch cotton webbing (not shown).

*Figure 5-24. Extraction system installed*

### 5-13. Installing Provisions for Emergency Restraints

Install provisions for emergency restraints according to FM 10-500-2/TO 13C7-1-5.

### 5-14. Placing Extraction Parachute

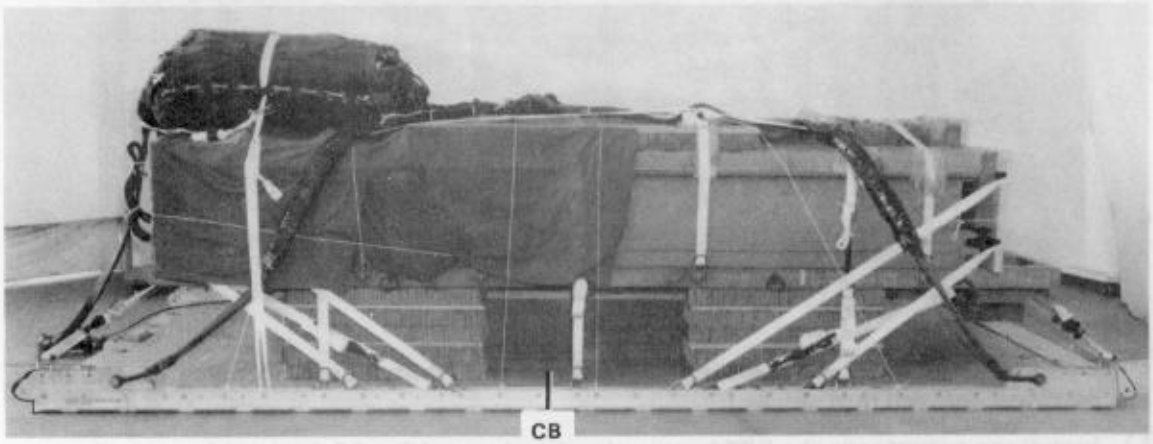
Place the extraction parachute as described below.

*a. C-130 Aircraft.* Place one 15-foot cargo extraction parachute and a 60-foot (1-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

*b. C-141 Aircraft.* Place one 15-foot cargo extraction parachute and a continuous 160-foot (1-loop), type XXVI nylon webbing extraction line on the load for installation in the aircraft.

### 5-15. Marking Rigged Load

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 5-25. If the load varies from the one shown, the weight, height, CB, and parachute requirements must be recomputed.




**RIGGED LOAD DATA**

| | | |
|---|---|---|
| Weight: | Load shown | 6,310 pounds |
| | Maximum load allowed | 6,800 pounds |
| Height | | 67 1/2 inches |
| Width | | 108 inches |
| Length | | 215 inches |
| Overhang: | Front | 5 inches |
| | Rear | 18 inches |
| CB (from front edge of platform) | | 101 inches |
| Extraction system | | EFTC |

*Figure 5-25. Two-bay components for the seven-bay, single-story, medium girder (fixed) bridge rigged for low-velocity airdrop on a type V platform*

## 5-16. Equipment Required

Use the equipment listed in Table 5-1 to rig this load.

*Table 5-1. Equipment required for rigging two-bay components for the seven-bay, single-story, medium girder (fixed) bridge for low-velocity airdrop on a type V platform*

| National Stock Number | Item | Quantity |
|---|---|---|
| 8040-00-273-8713 | Adhesive, paste, 1-gal | As required |
| | Clevis, suspension: | |
| 4030-00-678-8562 | 3/4-in (medium) | 4 |
| 4030-00-090-5354 | 1-in (large) | 5 |
| 8305-00-242-3593 | Cloth, cotton duck, 60-in | As required |
| 4020-00-240-2146 | Cord, nylon, type III, 550-lb | As required |
| 1670-00-434-5785 | Coupling, airdrop, extraction force transfer w 16-ft cable | 1 |
| 8135-00-664-6958 | Cushioning material, packaging, cellulose wadding | As required |
| 8305-00-958-3685 | Felt, 1/2-in thick | As required |
| 1670-01-183-2678 | Leaf, extraction line | 2 |
| | Line, extraction: | |
| 1670-01-064-4452 | 60-ft (1-loop), type XXVI nylon webbing | 1 |
| 1670-01-107-7652 | 160-ft (1-loop), type XXVI nylon webbing | 1 |
| 5315-00-010-4659 | Nail, steel wire, common, 8d | As required |
| 1670-00-753-3928 | Pad, energy-dissipating, honeycomb, | |
| | 3- by 36- by 96-in | 14 sheets |
| | 5- by 26-in | (4) |
| | 9- by 36-in | (12) |
| | 12- by 36-in | (8) |
| | 12- by 57-in | (16) |
| | 13- by 26-in | (2) |
| | 24- by 14-in | (4) |
| | 25- by 64-in | (2) |
| | 35- by 26-in | (12) |
| | 96- by 36-in | (2) |
| | Parachute: | |
| 1670-01-016-7841 | Cargo, G-11B | 2 |
| | Cargo extraction: | |
| 1670-00-052-1548 | 15-ft or | 1 |
| 1670-01-063-3715 | 15-ft | 1 |
| | Platform, AD, type V, 16-ft: | 1 |
| | Bracket: | |
| 1670-01-162-2375 | Inside EFTA | (1) |
| 1670-01-162-2374 | Outside EFTA | (1) |
| 1670-01-162-2372 | Clevis assembly | (22) |

*Table 5-1. Equipment required for rigging two-bay components for the seven-bay, single-story, medium girder (fixed) bridge for low-velocity airdrop on a type V platform (continued)*

| National Stock Number | Item | Quantity |
|---|---|---|
| 1670-01-162-2376 | Extraction bracket assembly | (1) |
| 1670-01-162-2381 | Tandem link | (4) |
| 5530-00-128-4981 | Plywood, 3/4-in: | 6 sheets |
| | 9- by 36-in | (4) |
| | 12- by 36-in | (4) |
| | 12- by 57-in | (8) |
| | 25- by 64-in | (2) |
| | 89- by 27-in | (4) |
| 1670-01-097-8816 | Release, cargo parachute, M-1 | 1 |
| | Sling, cargo airdrop: | |
| | For deployment line: | |
| 1670-01-062-6304 | 9-ft (2-loop), type XXVI nylon webbing | 1 |
| | For lifting: | |
| 1670-01-062-6303 | 12-ft (2-loop), type XXVI nylon webbing or | 4 |
| | For riser extensions: | |
| 1670-01-062-6302 | 20-ft (2-loop), type XXVI nylon webbing | 2 |
| | For suspension slings: | |
| 1670-01-062-6303 | 12-ft (2-loop), type XXVI nylon webbing | 4 |
| 1670-00-040-8219 | Strap, parachute release, multicut comes w 3 knives | 2 |
| 8305-00-074-5124 | Tape, adhesive, 2-in | As required |
| 1670-00-937-0271 | Tie-down assembly, 15-ft | 34 |
| | Webbing: | |
| 8305-00-268-2411 | Cotton, 1/4-in, type I | As required |
| | Nylon: | |
| | Tubular: | |
| 8305-00-082-5752 | 1/2-in or | As required |
| 8305-00-268-2453 | 1/2-in | As required |
| 8305-00-263-3591 | Type VIII | As required |

Section II

## LAPE AIRDROP

### 5-17. Description of Load

The seven-bay, single-story, medium girder (fixed) bridge consists of a five-bay, single-story, medium girder (fixed) bridge with additional components that, when

# GLOSSARY

**ACB** attitude control bar

**AD** airdrop

**AFB** Air Force base

**AFTO** Air Force technical order

**ALC** Air Logistics Center

**ARNG** Army National Guard

**attn** attention

**BSB** bank seat beam

**C** change

**CB** center of balance

**d** penny

**DA** Department of the Army

**DC** District of Columbia

**DD** Department of Defense

**diam** diameter

**EFTA** extraction force transfer actuator

**EFTC** extraction force transfer coupling

**FM** field manual

**ft** foot/feet

**gal** gallon

**HQ** headquarters

**in** inch

**LAPE** low-altitude parachute-extraction

**LAPES** low-altitude parachute-extraction system

**lb** pound

**MAC** Military Airlift Command

**MGB** medium girder bridge

**no** number

**qty** quantity

**rel** release

**rqr** requirement

**sec** second

**SL/CS** static line/connector strap

**TM** technical manual

**TO** technical order

**TRADOC** United States Army Training and Doctrine Command

**US** United States

**USAR** United States Army Reserve

**VA** Virginia

**w** with

**yd** yard

# REFERENCES

These documents must be available to the intended users of this publication.

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